

# Apple-Works Forum

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Four Dollars

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**Support for AppleWorks and ///EZ Pieces Users**

### What Happens When Your Battery Fails?

Dear Cathleen,

Here is a suggestion to my fellow NAUG members who run AppleWorks 2.1 or earlier on Apple IIGs computers: Keep a spare battery handy. The battery in your computer will fail sometime after its second anniversary. When the battery fails, the clock in the computer becomes unreliable and can generate some "creative" dates. That is not a problem with most programs. But AppleWorks 2.1 and earlier look at that clock and only accept dates after 1982. If the clock sets itself for a date after that year, AppleWorks boots normally. If the clock sets itself for a date before January 1, 1983, the program will not load and your system will freeze.

Teachers should also be aware of a clock-related practical joke some students like to play in the computer laboratory. These students access the IIGs Control Panel and set the clock for a date outside the range accepted by AppleWorks. Then AppleWorks will not boot on that system. The lesson is: If you suddenly can't boot AppleWorks on a IIGs, check the clock and the battery.

John Link  
Kalamazoo, Michigan

*[Ed: There are two ways to replace the battery in a IIGs. One approach is to take your computer to an Apple dealer who will solder a new battery onto the IIGs motherboard. Most dealers charge between \$40-\$70 for this service. Another approach is to get a Slide-On Battery. You install the Slide-On by cutting the leads to the original battery and sliding the new battery on the remaining portion of those leads. The process takes about five minutes. NAUG keeps a spare Slide-On Battery awaiting the day when our system will fail. The Slide-On Battery cost \$14.95 plus \$2 s/h per order (\$5 per order for foreign shipments).*

*Members who work in computer laboratories equipped with IIGs systems should consider keeping these batteries in stock. I suspect there will be a lot of educators wondering why some of their IIGs systems won't run AppleWorks when they reopen their laboratories after the summer vacation. Ten or more*

*batteries cost \$12 each. The manufacturer claims a ten-year shelf life for the battery.*

*Order from: Slide-On Batteries, 5734 Lamar Drive, Mission, Kansas 66202; (913) 362-9898.]*

### The History of "Boilerplate"

Dear Cathleen,

An article in the *AppleWorks Handbook* describes how to save standard formats and boilerplate text. The author of that article expresses curiosity about the origin of the word "boilerplate".

"Boilerplate" got its name back in the days of hot metal printing when type was set from molten metal on a Linotype machine. The process was expensive and the results were heavy. To save money in the production and shipping, syndicated material was made into "boilerplate". The process involved making impressions of the typeset material in blue or pink papier-mache that resembled the pieces of sheet metal used to manufacture old fashioned boilers; hence "boilerplate".

The boilerplate was mailed and frequently ended up in waste paper baskets whence they were retrieved by 11 year old boys looking for all sorts of oddments.

Yours truly, a former small boy....

G. Thompson  
Florence, Arizona

## AppleWorks Forum

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## Using Expanded Memory

Dear NAUG:

I recently added extra memory to my system so I could load all of AppleWorks 3.0 into my computer to avoid disk swaps with the program. But my copy of AppleWorks won't load onto the memory card. How do I get AppleWorks to copy itself into the expanded memory? Then the program will operate faster and keep me from having to swap disks.

Lois N. Russell  
St. Louis, Missouri

*[Ed: Since AppleWorks 3.0 does not load the segments into the main 64K bank or auxiliary 64K bank of memory, you need more than 256K of expanded memory for AppleWorks to pre-load all its modules. (For more information, see Randy Brandt's article entitled "Memory Management" elsewhere in this issue of the AppleWorks Forum.) If you have less than 256K of extra memory, AppleWorks will attempt to load the modules and will then take you to the Main Menu, whether or not it successfully completed that load.*

*If you are using a 5.25-inch disk version of AppleWorks, you also have to tell the program to load the modules into memory. Follow these steps:*

- 1. With the Main Menu on the screen, select #5, "Other Activities".*
- 2. With the Other Activities Menu on the screen, select #6, "Set Standard Settings for AppleWorks".*
- 3. With the Standard Setting Menu on the screen, select #1, "Change Preloading". Then tell AppleWorks which modules you want to preload.*
- 4. Enter an Apple-Q and then press the Escape Key to return to the Main Menu.*

*From then on, AppleWorks will load its modules into memory when you launch the program.*

*Owners of 3.5-inch copies of AppleWorks do not have to change this setting; 3.5-inch versions automatically load all the modules onto the expanded memory at boot-up.*

*Here is another suggestion for 5.25-inch disk users with expanded memory: Load the modules into memory and then replace the AppleWorks Program Disk with the Dictionary disk. Then you will not have to change disks when you do a spell check. You can speed up the process even further by loading the dictionaries onto a section of your memory card configured as a RAM disk; we will describe how to do that in a future issue of the AppleWorks Forum.]*

## Problems Getting Zip Chips

Dear Cathleen,

The July issue of the *AppleWorks Forum* lists special NAUG member prices for 4-megahertz and 8-megahertz Zip Chips. However, Computer Direct, one of the dealers listed in the article, refused to honor the special \$139 price for the 8-megahertz chip. Are any of the dealers offering the chips at the special prices?

Chuck Nagy  
Succasunna, New Jersey

*[Ed: As we went to press with this issue on July 10, some vendors listed in our July article were not notified of the special NAUG member offer on Zip Chips. We discussed this problem with Richard Stivers, President of Zip Technology, who indicated that the matter would be rectified shortly. In addition, Mr. Stivers offered to sell chips directly to any member who could not get the product from one of the dealers listed in the article.*

*If the dealer you call is either out of stock or refuses to sell the chip at the special NAUG member price, call Zip Technology at (213) 337-1313, ask for Ava, and identify yourself as a NAUG member. Stivers reports that he has both 4-megahertz and 8-megahertz chips in stock and that Zip will fill these orders immediately.]*

The **National AppleWorks Users Group (NAUG)** is an association that supports AppleWorks users. NAUG provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the *AppleWorks Forum*.

# HP's DeskJet Printer: Laser Quality Output from AppleWorks

by Rich Crossman

## **Classifieds**

**For Sale:** Printer that produces laser quality output. Compatible with all Apple II computers and all versions of AppleWorks. New. \$600.

**T**his advertisement is not a dream. Hewlett Packard's DeskJet and DeskJet Plus printers produce laser quality output from AppleWorks on any Apple II+, IIe, IIfx, or Apple II-compatible computer. The DeskJet has a suggested list price of \$795 and costs as little as \$600 from discount vendors. The DeskJet Plus lists for \$995 and is available for \$725.

Both printers produce superb output. *Figure 1* depicts printing produced from AppleWorks on my DeskJet Plus.

The DeskJet Plus uses a larger, faster processor and faster motors than the standard DeskJet. As a result, the DeskJet Plus prints text approximately twice as fast as the DeskJet and prints graphics almost five times faster than a standard DeskJet printer. This article is a review of the DeskJet Plus; I believe the \$125 additional cost for the Plus version of the DeskJet represents money well spent.

## **Functionality**

The DeskJet Plus is a state-of-the-art ink jet printer that produces text and graphic images by spraying tiny dots of a special ink on the page. These dots are so small and the printer is so precise that it sprays the ink at 300 dots per inch, the same resolution produced by most laser printers. This gives you laser quality output for a fraction of the cost normally associated with laser quality printing. The DeskJet Plus is also much quieter than dot matrix or daisy wheel printers, is ruggedly built, and has

proven itself extremely reliable during the past eight months since I purchased the unit.

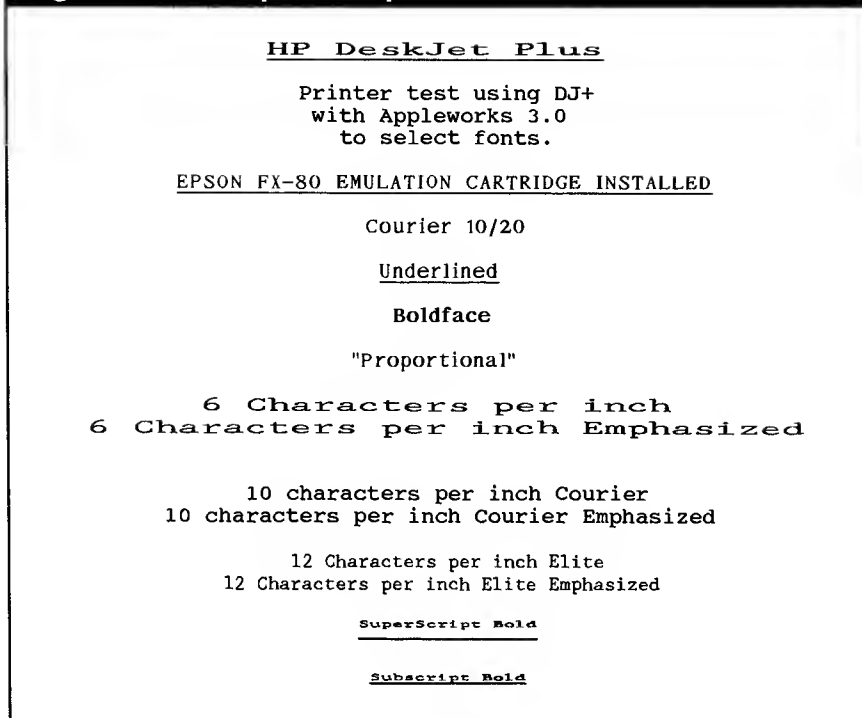
## **Using AppleWorks with the DeskJet**

The trick to using AppleWorks with the DeskJet is to use HP's optional Epson FX-80 Printer Emulation Cartridge (\$75 retail). Once you install the Epson emulator, the DeskJet accepts all the Epson FX printer codes built into AppleWorks. You then add the Epson FX printer to the AppleWorks Printer Menu and can get high quality, proportionally spaced output that looks identical to the output produced by laser printers. *[Ed: Using Epson emulation is also the secret to using many of the inexpensive new breed of personal laser printers with AppleWorks.]*

You can also use the DeskJet in its "native" mode by installing the DeskJet as a custom printer in AppleWorks. That gives you access to all the languages, fonts, and font sizes built into the printer. However, since AppleWorks does not support proportional spaced output from custom printers, you will lose access to that attractive set of fonts. In addition, since few Apple II programs support the DeskJet, you will not be able to print documents from SuperFonts or graphics from Print Shop, Certificate Maker, or other graphic programs. You can print from all these programs with the Epson Emulation Cartridge in the printer.

The printing speed of the DeskJet Plus is comparable to that of an ImageWriter II printing in draft mode and significantly faster than the ImageWriter printing in near letter quality mode. It takes the DeskJet Plus approximately 27 seconds to print a page in its very acceptable draft mode (300 x 150 dpi) and approximately 35 seconds to print the same page in letter quality mode (300 x 300 dpi).

**Figure 1: Sample Output from DeskJet Plus**



individual #10 envelopes. The printer does not accommodate other sizes of paper or envelopes, nor will it handle stacks of #10 envelopes.

## Printer Setup

The DeskJet Plus comes with both serial and parallel interfaces. Owners of Apple IIc, IIc Plus, and IIGs computers will use the printer's serial interface. Apple II+ and IIe owners can either connect an Apple Super Serial Card to the serial port on the DeskJet, or connect any standard parallel printer interface card to the printer's parallel port. In either case, you use a standard Apple ImageWriter I printer cable to connect the printer to your computer. (Note: The DeskJet Plus manual gives the incorrect part number for the cable necessary to connect

the Apple IIGs. Use the cable that connects the IIGs to an ImageWriter I printer.)

Setup is made particularly easy by the diagrams in the Owners Manual that comes with the printer. That manual includes separate sections that describe how to connect Apple IIc, II+, IIe, and IIGs computers to the printer. The manual also includes diagrams of the DIP switches you have to set in the printer and, if you have an Apple II+ or IIe, the switch settings for the parallel or serial interface card in your computer. With the diagrams and the correct cables in hand, setup takes only minutes.

## AppleWorks Setup

If you use the recommended Epson FX-80 Printer Emulation Cartridge, it is easy to configure AppleWorks to drive the DeskJet. All you need do is add an FX-series printer to the AppleWorks Printer Menu. Then you can use the Special Codes area to store the commands for codes not normally supported by AppleWorks, such as Italics Begin (Escape 4) and Italics End (Escape 5). You can leave the interface card setting at its default value of Control-I 80N.

If you do not have the Epson Cartridge, you can use the DeskJet in its native mode by adding a custom printer to AppleWorks. Five pages of appen-

## Ink Cartridges and Paper Handling

Printing on the DeskJet is more expensive than printing on dot matrix or laser printers. The DeskJet uses a removable ink cartridge rated to produce approximately 330 pages of single-spaced draft quality or 165 pages of letter quality output. Cartridges have a suggested list price of \$19.95 (although they are available at significant discounts from mail order vendors) which works out to approximately six cents for a typical page of double spaced letter quality text (five cents per page if you buy discounted cartridges).

Replacing a cartridge is a 30-second operation that is easier and cleaner than changing a printer ribbon. Cartridges are only available with black ink.

Unlike earlier ink jet printers, DeskJet ink does not smear unless you get the paper wet and rub the surface vigorously.

Paper handling is especially convenient. The DeskJet holds approximately 100 sheets of 8.5 x 11 inch paper in an easy-to-load paper tray. I get good results with most high quality copier and bond papers; HP suggests that you *not* use paper designed for ink jet printers. The DeskJet also prints on sheets of labels designed for laser printers and on

dices in the manual present the codes for the numerous fonts and features built into the DeskJet system. (Figure 2 summarizes the most frequently used codes.) As mentioned earlier, AppleWorks does not support proportional fonts for custom printers, so unless you want to produce foreign characters not available on the Epson, I suggest that you use the Epson Emulation Cartridge.

### Documentation

The 230-page DeskJet Plus Owner's Manual is comprehensive and well written. One chapter describes how to unpack, set up, and load paper and ink cartridges into the printer. Another chapter describes how to use the printer with 27 different computers, including different Apple II systems. Other chapters describe how to configure various MS-DOS programs to drive the printer. A section called "Help!" describes how to solve the most frequently occurring problems with the unit. Three technical sections explain how to program the printer, how it handles data communications, and provide information about different fonts.

The manual is notable for its clarity, its attention to detail, its inclusion of Apple II systems, and the diagrams that make it easy to configure the DIP switches. I rate the manual "excellent".

### Support

Apple Computer could take a lesson in customer support from Hewlett Packard. The company publishes both its local and 800 numbers inside the front cover of the Owner's Manual. My calls to their 800 number were immediately routed to the correct department where the helpful representative answered my questions regarding the printer. The company also publishes a non-800 number you can use to contact staff that will help solve printer setup and operational problems. HP recently extended the warranty on all DeskJet printers to three years. I rate this level of support "excellent".

**Figure 2: Native Mode Commands**

Needs line feed after each Return	No
Accepts top-of-page commands	Yes
Stop at end of each page	No
Platen width	8.0 inches

**Special Codes:**

Italics Begin:	Escape (s1S	France:	Escape (1F
Italics End:	Escape (s0S	Germany:	Escape (1G
Sweden:	Escape (3S	Italy:	Escape (0I
Norway:	Escape (0D and	Spain:	Escape (2S
	Escape (1D	Portugal:	Escape (4S
UK:	Escape (1E	Legal:	Escape (1U

**Printer Codes:**

6 lpi:	Escape &16D	Bolface Begin:	Escape (s3B
8 lpi:	Escape &18D	Boldface End:	Escape (s0B
5 cpi:	Escape (s5H	Subscript Begin:	Escape (s-1U
6 cpi:	Escape (s6H	Subscript End:	Escape (s0U
10 cpi:	Escape (s10H	Superscript Begin:	Escape (+1U
12 cpi:	Escape (s12H	Superscript End:	Escape (s0U
17 cpi:	Escape (s17H	Underline Begin:	Escape &d3D
20 cpi:	Escape (s20H	Underline End:	Escape &d@
24 cpi:	Escape (s24H		

*Note: There are four different styles of underlining; see the manual.*

*My thanks to Ed Jones for posting most of these codes on NAUG's bulletin board, the Electronic Forum.*

### Limitations

I encountered five limitations of the DeskJet that you should consider when buying a printer. First, like all ink jet printers, the DeskJet cannot produce carbon copies or print on NCR paper. Although I rarely need this capability, the ability to produce carbons is important in some applications.

Second, the DeskJet only works with cut sheets of paper and cannot handle continuous feed forms. I prefer to work with individual sheets of paper because I don't have to tear off the tractor edges and I have a better choice of paper quality. However, if your application requires continuous feed paper or continuous feed forms, don't consider the DeskJet.

Third, you can only print graphics if you use the Epson Emulation Cartridge. Using this cartridge, I can print Print Shop and other graphics, but only at the 72 dots-per-inch resolution offered by Epson FX-80 printers. While graphics printed on the DeskJet look smoother and more attractive than



### Rebates on HP DeskJet Printers

Until August 31, 1990, Hewlett Packard is offering cash rebates on DeskJet and DeskJet Plus printers purchased from authorized HP dealers. Buyers of DeskJet printers get a \$75 rebate; DeskJet Plus printers earn a \$150 rebate directly from the company. Be certain that you buy from an authorized dealer; these rebates do not apply to printers purchased from non-authorized dealers. Contact Hewlett Packard at (800) 752-0900 for the name of your nearest dealer.

similar graphics printed on the dot matrix Epson printer, they do not take advantage of the full 300 dpi capability of the DeskJet. Remember that TimeOut SuperFonts prints in graphic mode. Thus, I get excellent, but not laser quality output from SuperFonts on the DeskJet.

Fourth, the DeskJet cannot print within one-half inch of the top and bottom edge of a page. This is not a problem when you work with AppleWorks, but it does cause problems when you use graphic programs like Print Shop. For example, you cannot use the DeskJet to produce banners or greeting cards with that program.

Finally, there are no GS/OS printer drivers that take advantage of the 300 dpi capability of the DeskJet. Therefore, you cannot use the DeskJet with AppleWorks GS; AWGS only includes drivers for Apple's ImageWriter and LaserWriter printers. Do not consider the DeskJet if you want to use programs that use the printer drivers incorporated into the GS/OS operating system.

### Conclusion

The HP DeskJet Plus is a high quality printer from a company with a well deserved reputation for producing excellent hardware and offering a high level of customer support. The printer represents a cost-effective solution to users' demands for laser quality output at a reasonable price. The DeskJet Plus represents an exceptional value; I recommend it highly.

*[Rich Brossman is an Engineering Specialist for Ohio Bell Telephone and is an active member of the Northeast Ohio Apple Corps.]*

## Quick Tip

### An Easy Way to Find Your Place

by Steve Beville

Here is a word processor tip for AppleWorks users with UltraMacros.

Imagine that you are working on a large document, want to look at something else in the file, and then want to return to your present location. Enter an <oa--> (that's an Open-Apple Hyphen). That is the UltraMacros Cell Command. In the word processor, this command reads the current line into variable \$Ø. When you want to return to this line, type <oa-1> <oa-F> T <sa-Ø> <rtm> N. This will take you back to the original line. Of course you can write a macro to invoke these keystrokes.

This tip does not work if the cursor is on a blank line when you enter <oa--> or if the first 30 characters of the line above the one you mark are identical to the marked line.



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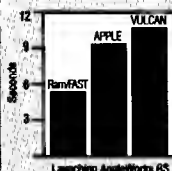


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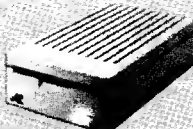


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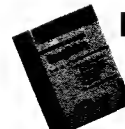
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# How to Add Summaries to a Spreadsheet

by Warren Williams and Cathleen Merritt

---

*This is the sixth in a series of articles designed to help novices use the AppleWorks spreadsheet module. This article describes how to add summaries to a spreadsheet and how to design formulas so you can use the Arrange Command. The authors assume you read the previous articles in this series and that you are using AppleWorks 3.x.*

---

Last month we described how to enhance a spreadsheet template by drawing vertical lines to separate the columns. This month we will describe how to prepare summaries of the data in a spreadsheet model.

## Types of Summaries

There are two types of spreadsheet summaries:

1. Column summaries that usually give the count, sum, and/or average of the data in a column.
2. Group summaries that appear in a separate box at the bottom of the page.

Figure 1 depicts a gradebook spreadsheet with both column and group summaries. The column summaries appear at the bottom of each column. The group summary appears in a box in the lower right-hand corner of the spreadsheet. (We will discuss the reasons for that placement and other spreadsheet design issues in a future article in this series.)

Although column and group summaries look different, the primary distinction between these summaries is their format and placement. Fortunately, the rules of basic formula construction apply to both types of summaries.

If you are doing the exercises in this series of articles, you already know how to produce formulas that average sets of numbers. (This information appeared in the article entitled "How to Prepare Your First Spreadsheet—Part 4" in the June 1990 issue of the *AppleWorks Forum*.) Now we will expand on that knowledge.

## Draw Another Horizontal Line

Figure 2 presents the gradebook template you developed at the end of last month's article. Let's start by putting a line of equal signs across the bottom of the spreadsheet. Although you could type the necessary characters, an easier approach is to copy the contents of row 7 into row 44. Follow these steps:

1. Move the cursor to cell A7, issue an Apple-C, and indicate that you want to copy "To clipboard".
2. Press the Return Key to select "Rows" and press the Return Key again to indicate that you only want to copy row 7.
3. Issue an Apple-9 and then press the Down Arrow Key to jump to the bottom of the spreadsheet.
4. Issue an Apple-C and then an "F" to copy "From clipboard".

Next, you will enter formulas to display the average test scores and homework grades in row 45.

## Formulas for Column Averages

The formulas in columns M and N of Figure 2 average a row of numbers. For example, the formula in cell M8 reads @AVG(D8...F8). The structure (or "syntax") of these formulas is as follows:

@AVG(first cell...last cell).

Unlike the formulas in columns M and N, the formulas in row 45 will average the numbers that appear in each column; this requires a somewhat dif-

## Figure 1: Spreadsheet with Column and Group Summaries

File: GRADEBOOK

REVIEW/ADD/CHANGE

Escape: Main Menu

1 Semester:  
2 Class:  
3  
4  
5 Last First  
6 Name Name  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
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28  
29  
30  
31

Tests			Homework				Average		Weight		
1	2	3	1	2	3	4	Tests	Homewk	Avg.		
Adams	John	85	85	80	75	80	80	85	83.3	78.3	81.3
Adams	John Q.	80	85	80	70	70	75	80	81.7	71.7	77.7
Harrison	William	70	75	70	70	80	75	90	71.7	75.0	73.0
Jackson	Andrew	75	70	75	70	75	80	90	73.3	75.0	74.0
Jefferson	Thomas	80	80	90	90	90	95	90	83.3	91.7	86.7
Madison	James	75	80	80	90	80	80	75	78.3	83.3	80.3
Monroe	James	85	85	80	85	85	80	70	83.3	83.3	83.3
Van Buren	Martin	65	70	70	70	65	60	70	68.3	65.0	67.0
Washington	George	90	85	85	80	80	80	85	86.7	80.0	84.0
		79	79	79	78	78	78	82	78.9	78.1	78.6

\*\*\*\*\*  
\*\* Number of Students = 9 \*\*  
\*\*  
\*\* Lowest test average = 68.3 \*\*  
\*\* Highest test average = 91.7 \*\*  
\*\*  
\*\* Lowest homework average = 65.0 \*\*  
\*\* Highest homework average = 65.0 \*\*  
\*\*  
\*\* Lowest final average = 67.0 \*\*  
\*\* Highest final average = 86.7 \*\*  
\*\*\*\*\*

Type entry or use ⌘ commands

⌘-? for Help

ferent logic. For example, you would expect the formula in cell D45 to read @AVG(D8...D43). Although that formula will generate the correct average, you might experience two problems using the spreadsheet. First, if you ever rearrange the rows, AppleWorks will change the formula and it will no longer be correct. That is because AppleWorks "adjusts" all cell references when it moves, inserts, or deletes a row or column of cells. The new formula will adjust itself to "follow" the first and last cells in the row. If those cells move, the formula will no longer average the entire column of numbers. (For more information about this problem, see the article entitled "How to Write Spreadsheet Formulas So You Can Use the 'Arrange' Command" that appeared in the January 1987 issue of the *AppleWorks Forum*.) Second, the average will not include any data that appears in rows you add to the very beginning or end of the list.

## Figure 2: Gradebook Spreadsheet

```

File: GRADEBOOK          REVIEW/ADD/CHANGE          Escape: Main Menu
  A-----B-----C-----D-----E-----F-----G-----H-----I-----J-----K-----L-----M-----N-----O-----P-----
1 Semester:
2 Class:
3
4
5 Last      First
6 Name      Name
7 -----
8
9
10
11
12
13
14
15
16
17
18
19

```

		Tests			Homework				Average		Weight
		1	2	3	1	2	3	4	Tests	Homewk	Avg.
									ERROR	ERROR	ERROR
									ERROR	ERROR	ERROR
									ERROR	ERROR	ERROR
									ERROR	ERROR	ERROR
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									ERROR	ERROR	ERROR
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									ERROR		

The trick to overcoming both of these problems is to write the formula so it addresses non-numeric cells above and below the immediate data area. Rows 7 and 44 contain these non-numeric entries. Therefore, the correct formula to enter into cell D45 is @AVG(D7...D44). Enter that formula now.

Remember this rule: All formulas that do arithmetic summaries on columns of data should refer to the cell immediately above and the cell immediately below the numbers you want to include in the calculations.

## Novice Notes...

### Copy the Formula

You want averaging formulas to appear in cells D45-F45, H45-K45, M45-N45, and P45. The easiest approach is to copy the formula from cell D45 into these cells. This procedure will also copy the formula into cells G45, L45, and O45, but you can blank those cells later. Proceed as follows:

1. Put the cursor in cell D45 and issue an Apple-C command. Indicate that you want to copy "Within worksheet".
2. Move the cursor to cell E45 and press the Period Key to indicate that you want to copy into a range of cells starting at cell E45.
3. Issue an Apple-> command to highlight cells E45 through P45, then press the Return Key.
4. Issue an Apple-R command to indicate that you want to make all cell references "Relative".

Since you have no data in the template, error messages will appear in all the cells that contain formulas. Calculated values will replace the error messages after you enter data into the model.

Now you will blank the formulas in cells G45, L45, and O45 and label the row of averages. Continue as follows:

5. Put the cursor in cell G45 and issue an Apple-B command. Press the Return Key to select "Entry". Repeat this step for cells L45 and O45.
6. Label these cells by putting the cursor in cell B45 and entering "Average =".
7. Unless you change the AppleWorks defaults, each average will display with a different number of decimal places. Use the Apple-L command to change the Value Format to a fixed number of decimal places and specify one deci-

**Figure 3: Gradebook with Column Averages**

File: GRADEBOOK		REVIEW/ADD/CHANGE										Escape: Main Menu				
A		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Semester:															
2	Class:															
3																
4																
5	Last	First	Tests			Homework				Average		Weight				
6	Name	Name	1	2	3	1	2	3	4	Tests	Homewk	Avg.				
7																
8										ERROR	ERROR	ERROR				
9										ERROR	ERROR	ERROR				
10										ERROR	ERROR	ERROR				
11										ERROR	ERROR	ERROR				
12										ERROR	ERROR	ERROR				
										ERROR	ERROR	ERROR				
										ERROR	ERROR	ERROR				
36										ERROR	ERROR	ERROR				
37										ERROR	ERROR	ERROR				
38										ERROR	ERROR	ERROR				
39										ERROR	ERROR	ERROR				
40										ERROR	ERROR	ERROR				
41										ERROR	ERROR	ERROR				
42										ERROR	ERROR	ERROR				
43										ERROR	ERROR	ERROR				
44										ERROR	ERROR	ERROR				
45		Average =	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR				

mal place. (Step-by-step directions appear in the section entitled "Formatting the Averages" in the fourth article in this series (June 1990).)

8. Your spreadsheet should now look like the sample in *Figure 3*. The lack of data in rows 8 through 43 cause the ERROR statements in row 45. Issue an Apple-S command to save your work.

### The Summary Box

The summary box will contain information about the number of students and the lowest and highest test score, homework grade, and overall averages achieved by any student. (See *Figure 4*.)

The summary will appear in columns R-T. Column R will contain two asterisks and the descriptive label. Column S will store the necessary formulas, and column T will contain the two following asterisks.

Proceed as follows:

1. Put the cursor in cell R47, issue an Apple-L command, and make that column 28 characters wide. You learned how to change column widths in the third article in this series. (The default column width is nine characters, therefore you should increase the width by 19 characters.)
2. Enter a quotation mark, and type the following:

\*\* Number of students =

```
*****
** Number of Students      = ERROR **
**
** Lowest test average    = ERROR **
** Highest test average   = ERROR **
**
** Lowest homework average = ERROR **
** Highest homework average = ERROR **
**
** Lowest weighted average = ERROR **
** Highest weighted average = ERROR **
*****
```



Next, you will enter the necessary formulas into column S. These formulas use the @COUNT, @MIN, @MAX, and @AVG functions.

## Novice Notes...

1. Put the cursor in cell S47 and enter @COUNT(P7...P44). (@COUNT counts the number of numeric entries in a range of cells.)
2. Put the cursor in cell S49 and enter @MIN(M7...M44). (@MIN displays the lowest number in a range of cells.)
3. Put the cursor in cell S50 and enter @MAX(M7...M44). (@MAX displays the largest number in a range of cells.)
4. Then enter the following formulas:

Cell	Formula
S52	@MIN(N7...N44)
S53	@MAX(N7...N44)
S55	@MIN(P7...P44)
S56	@MAX(P7...P44)

### Format the Values

Unless you change the AppleWorks defaults, each cell that contains an average will display the average with a different number of decimal places. You could individually format cells S49, S50, S52, S53, S55, and S56, but that would take extra steps. Instead, you will format all the cells between S49 and S56. Since cells S51 and S54 are blank, these formatting commands will not affect the output from your model.

Follow these steps to format those cells with one decimal place:

1. Put the cursor in cell S49 and issue an Apple-L command.
2. Select "Block" and enter an Apple-9 to highlight cells S49 through S56. Then press the Return Key.
3. Indicate that you want to affect "Value format".
4. Select "Fixed" and specify that you want one decimal place.
5. Issue an Apple-S command and save your work.

### Finish the Formatting

Now you will finish the asterisks at the top, bottom, and right-hand side of the box. You will start by putting the asterisks into cell T47 and copying them into cells T48-T56. Follow these steps:

1. Put the cursor in cell T47, enter a quotation mark, a space, and two asterisks. Then press the Return Key.
2. With the cursor still in cell T47, issue an Apple-C command and copy the contents of cell T47 "Within spreadsheet".
3. Move the cursor to cell T48 and press the Period Key.
4. Enter an Apple-9 to highlight through cell T56. Then press the Return Key.

Then follow these steps to finish the box:

1. Put the cursor in cell R46, enter a quotation mark, and then hold down the Asterisk Key to fill cells R46, S46, and the first three spaces in cell T46. Then press the Return Key.
2. Move the cursor to cell R57 and repeat the process.
3. Issue an Apple-S command to save your work.

### Testing and Printing

Your spreadsheet is now too large to display on the AppleWorks screen, and it is difficult to get the complete picture of the template by scrolling around the screen display. In addition, spreadsheets are seductive. No matter how inaccurate or illogical the formulas you enter, the spreadsheet will produce attractive, nicely formatted results. As suggested in the early articles in this series, it is important to check the accuracy of your formulas by entering data and examining the results. The way to handle both these problems is to enter sample data, print a copy of the spreadsheet, and examine the printout of the model. Proceed as follows:

1. Issue an Apple-N command and rename the spreadsheet to "TEMP". You are about to add data to the blank template. By changing the file name, you can avoid accidentally replacing the blank template file on the disk with the spreadsheet containing the sample data.
2. Enter four or five rows of sample data.
3. Next you will print the spreadsheet so you can examine the output. Start by using the Apple-D command to delete all the blank rows that you did not fill with sample data.



## Novice Notes...

4. The model is too wide to print with normal size characters, so you must change the settings on the Options Menu to print in a smaller font. Follows these steps:
  - A. Issue an Apple-O command to get to the Options Menu.
  - B. Enter "CI" to specify that you want to change the number of characters per inch. Then press the Return Key.
  - C. Enter "17" and press the Return Key.
  - D. Press the Escape Key to return to the spreadsheet.
5. Make certain your printer is connected to the computer, is loaded with paper, is turned on, and is "on line" or "selected".
6. Issue an Apple-P command and press the Return Key to select "All". Then choose your printer from the Printer Menu and indicate that you want to print one copy.
7. Examine the format of your printout. Did everything print correctly?
8. Check each formula by doing every calculation manually.
9. If your printout is correct, press the Escape Key to return to the Main Menu and select choice #4, "Remove files from desktop". Select the "TEMP" file and indicate that you want to "Throw out the changes to the file".

### Print the Template

Once you confirm the accuracy of the formulas, you should print a copy of the blank template. Follow these steps:

1. Return to the Add Files Menu and load the GRADEBOOK template back onto the AppleWorks desktop.
2. Issue an Apple-O command and change the characters per inch to "17".
3. Make certain your printer is ready to print.
4. Issue an Apple-P command, select "All", choose your printer, and indicate you want to print one copy.

5. Issue an Apple-S command to save the change you made to the Options Menu in step #2 above.

### Conclusion

This month you learned how to design formulas that summarize columns of data, how to prepare summary boxes, how to use the @COUNT, @MAX, and @MIN functions, and how to format and print the spreadsheet template. Next month you will learn how to manipulate the global formatting commands built into AppleWorks.

*[Dr. Warren Williams is on the faculty at Eastern Michigan University where he teaches courses in the Educational Technology program. He is the President of NAUG and is a frequent contributor to the AppleWorks Forum.]*

*[Cathleen Merritt is the Director of NAUG and is the Editor of the AppleWorks Forum.]*

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# How to Capture an Image of Your Screen

by William Neef

**W**henver you want to capture the details of an AppleWorks screen, you can issue an Apple-H command and print the screen on your printer. You can use this feature to get a hard copy of any AppleWorks screen, including the screen that displays your printer codes or data base report formats.

Unfortunately, AppleWorks does not have a command that lets you capture the current screen in electronic form on a disk. There are times you want an electronic image so you can transmit a copy of a screen by modem, incorporate a spreadsheet screen shot into a word processor document, or transfer an AppleWorks screen into a page layout program.

Guy Durant, of Chevy Chase, Maryland, an active member of the Washington Apple Pi users group, developed a macro that solves this problem. Mr. Durant's macro creates a word processor file that contains a "screen shot" of the image that is on the screen. You can then transmit the screen shot file by modem or transfer the image into any other program that accepts AppleWorks files. *[Ed: Note that Beagle Bros' new MacroEase disk also includes a screen shot macro.]*

## How It Works

Unfortunately, UltraMacros interprets AppleWorks Return characters (the little "blots" on the screen) as Delete commands and deletes the character to the left of the blot. Thus, Mr. Durant starts by checking if the word processor screen is "zoomed in" (with the Return blots on the screen). If the blots appear on the screen, the macro asks you to "zoom out". If you want to capture commands such as word processor formatting commands, you can leave the screen zoomed in and lose the character preceding each Return. *[Ed: You can force AppleWorks to zoom out within the macro, but that auto-*

*matically deletes all the formatting commands from the screen.]*

The macro creates the screen shot in an AppleWorks word processor file on the desktop. Since AppleWorks limits you to a total of 12 desktop files, the macro checks if you have room for the additional file. If it finds 11 or fewer files on the desktop, the macro continues. If you already have 12 files on the desktop, the macro asks you to remove one of those files and stops.

Mr. Durant wants to store the contents of each line of the screen in a different string variable, but first he must overcome the UltraMacros limit of nine string variables. He accomplishes this by reading the first eight lines from the screen into variables \$1 through \$8 and then using the <putvar> command to store the contents of these variables into variable set #1. Then he repeats the procedure and stores the next 16 lines in variable sets #2 and #3.

Next, Mr. Durant creates a new word processor document to store the data, sets the right and left margins to zero to fit the screen on the printed page with the default font size of 10 cpi, and reads the contents of variable set #1 into the first eight lines on the screen. He repeats this process for the remaining two sets of string variables. Then he clears all the string variables, and stops.

This macro names the screen shot file "Screen.n" where "n" represents the number of the file on the Desktop Index. If you save a series of screen shots, the macro automatically assigns different suffixes to each filename.

For more information about the powerful <putvar> and <getvar> tokens used in this macro, see the "Notes" file on the UltraMacros disk or pages 190-192 in *The UltraMacros Primer*, which in-

# My Favorite Macro...

cludes sample macros that use both <putvar> and <getvar>.

## Customize the Macro

There are a number of ways to customize this macro. For example, you can change the line that begins "oa-O>" (two-thirds of the way through the macro) that sets the left and right margins to zero to suit your preferences. My version of the macro leaves the left and right margins at their default values of 1.0 inches but sets CI=15, TM=.5, and LI=8. The CI=15 setting fills the AppleWorks screen with the margins set at 1.0 inches and the LI=8 setting gives a more realistic representation of the screen when I print on my ImageWriter II printer.

## A Word about Notation

Unlike the macros published during the past few months which made extensive use of subroutines, Mr. Durant structured his work into a single large macro. However, he made the macro easier to understand by using "section headers", which he constructs as comments with a line of hyphens.

*[William Neef is a retired purchasing agent for Welding Metals, Inc. He is Treasurer of the Apple Jackson Users Group in Jackson, Michigan.]*

Figure 1: Screen Shot Macro

```

start
<ba>:<all:                                { Define the macro.
onerr stop :                               { If AppleWorks' error beep "sounds", stop the macro.
clear :                                    { Clear all variables.
F = peek #wpzoom :                         { Check AWP file zoom status (loc 31841).
if F = 1 :                                 { If this is an AWP file and is zoomed-in...
then msg 'Enter' + &A& + '-Z to Zoom now. Otherwise, the ends of lines may be deleted.' :
                                          { ...then show the message including Mousetext Apple.
F = key :                                  { Read the next keystroke.
if F = 218 or F = 250 :                    { If user pressed oa-Z or oa-z...
then zoom :                               { ...zoom-out ("then" token is optional).
else : endif :                             { If not an AWP file & zoomed-in, cancel all "ifs" & continue.
msg '': clear :                            { Clear the message and clear all variables.
F = peek #filecount :                     { Check the number of files on the desktop (location 3157).
ifnot F < 12 : then :                      { If not less than 12 files on the desktop...
msg 'Desktop full...remove one or more files.' : { ...display a message...
stop :                                    { ...and stop the macro.
else :                                     { Otherwise...

{---STORE SCREEN IN VARIABLES, STARTING HERE-----
{---Read first 8 lines and store 8 variables-----
{---Put the 8 variables into one variable set-----
{---Repeat 3 times, to store the 24 total screen lines with 3 "putvars"-----
begin :
V = V + 1 :                               { The next two repeats jump back to here.
L = A * 8 + V :                           { Increment the line counter "V".
$(V) = screen 1, L, 80 :                  { Increment the total line counter "L".
if V < 8 :                                 { Read characters 1 through 80 from line L into variable $(V).
then rpt :                                { If V<8...
else :                                    { ...read in the next line.
V = 0 :                                   { If V=8...
A = A + 1 :                               { ...reset V to 0...
putvar A :                               { ...increment <putvar> counter...
if A < 3 :                                { ...and store contents of $1 through $8 in variable set A.
then rpt :                                { If this is not the third variable set...
{---CREATE AWP FILE, STARTING HERE-----
else : oa-Q :                             { Display the Desktop Index.
F = F + 1 :                               { Increment variable F (used to print screen number).
esc>1<rtm>3<rtm>1<rtm :                  { Create a new word processor document.
>Screen.<print F : rtn :                  { Name it "Screen.F".
oa-O>LM<rtm>0<rtm>RM<rtm>0<rtm : esc :    { Set left and right margins to zero.
A = 1 :                                   { Reset variable A to 1.
getvar A :                               { Get variable set 1, 2, or 3 depending on the value of A.
begin :                                  { The next two repeats return to here.
V = V + 1 :                               { Increment the line counter.
print $(V) :                             { Print a line on the screen.
rtn :                                    { Go to the next line on the screen.
if V < 8 :                                { If V<8...
then rpt :                               { ...repeat and print the next line.
else :                                    { When V=8...
V = 0 :                                   { ...reset variable V...
A = A + 1 :                               { ...increment variable A...
if A < 4 :                                { ...check if you printed all three sets of variables...
then getvar A :                          { ...if you did not, get the next set...
rpt :                                    { ...and repeat the process.
{---CLEAR ALL VARIABLES, STARTING HERE-----
else :
getvar 3 : clear :                       { When the screen shot is complete...
putvar 3 :                               { Clear variable set #3.
getvar 2 : clear :                       { Put cleared variables back into set #3.
putvar 2 :                               { Clear variable set #2.
getvar 1 : clear : stop>!                { Put cleared variables back into set #2.
                                          { Clear variable set #1 and stop.

```

# How to Page-Number Long Documents

by Jack Kuntz

**P**rinting page numbers with AppleWorks 3.0 is easy if your manuscript does not exceed 511 pages. But suppose you are writing the Great American Novel, or a lengthy report. After page 511, AppleWorks will display the message "Documents cannot be paginated past page 511".

In this article, I will describe how to overcome this AppleWorks limitation. I will assume you used the PH command to print the page number at the top of each page, like this:

J. Blow, Grt Am Novel: Page ^

The caret (^) marks the space where you input the PP (Print Page Number) option. AppleWorks calculates each page number and prints the text and page number on every page from page 1 through page 511.

Let's assume you keep each chapter in a separate word processor file and that Chapter One is 32 pages long, Chapter Two is 54 pages, and Chapter Three is 13 pages. On the first page of each chapter (that is, at the beginning of each file) you enter the header that appears above, including the caret for Print Page Number. For all chapters beyond the first, you also use the PN command, which lets you tell the computer the number to assign to the current page. Thus, for Chapter Two, go to the Option Menu, issue a PN command, and input 33 as the first page number for that chapter. (Remember that Chapter One took 32 pages.) Likewise, Chapter Three starts with 88, Chapter Four starts with 102, and so on.

This approach works until you get to page 511, when AppleWorks generates its error message. Here is what to do to continue page numbering after page 511:

1. Issue an Apple-K command and find where page 511 ends. The screen will display

- - - - End of Page 511 - - - -

just below the last line of text for that page.

2. Create a new word processor file with a different name and move everything below the page 511 line break to the new file.
3. Create a Page Header at the beginning of the new file. The Page Header should be identical to the original, with one exception: enter a "5" in front of the PP command, like this:

J. Blow, Grt Am Novel: Page 5^

4. Issue a PN command and designate the first page as page 12.

Now the first part of this chapter will end on page 511, and the second part of the chapter will print beginning with page 512, even though the computer thinks it is printing page 12. Subsequent pages will be numbered 13, 14, and 15, but will print as 513, 514, and 515.

## Cautions

If you revise any text on or before page 511, you might find that page 511 no longer "breaks" at the same point. In that case, you will have to move text between the two files.

AppleWorks does not print page number "00" and deletes the leading zeros from page number 01, 02, and so on. Thus, if your text runs to page 600 and beyond, you will have to create a one page file for page number 600, a nine page file for pages 601-609, and another file to accommodate pages 610-699 with the digit "6" preceding the caret in the Page Header.

If your manuscript runs to 700 or more pages, you are really long-winded. Career counseling may be indicated.

*[Jack Kuntz is a free-lance writer and a retired computer systems analyst.]*

# Memory Management

by Randy Brandt

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*This is the third in a series of articles that describe the internal workings of AppleWorks 3.0. These articles will help intermediate and advanced AppleWorks users understand why the program behaves the way it does. Mr. Brandt is one of the authors of AppleWorks 3.0.*

---

**A**ny program that manipulates data must also manage the computer's internal memory. Every program's "memory manager" includes routines that load information from a disk, store it in memory, and retrieve, modify, and eventually save the data back to disk.

Keeping track of the data in memory and making it available to the various program segments is the role of the memory management routines in AppleWorks. The memory manager lets the core of the program function without concern about these operations. For example, the memory manager in AppleWorks keeps track of the memory location of every line in a word processor document. Thus, the main routines in AppleWorks can call the memory manager whenever they need a line of data without concern about the location of that data.

## A Brief History

When Bob Lissner developed AppleWorks, he made a design decision regarding memory management that contributed significantly to the program's flexibility. Although Apple computers were available only with 64K and 128K of memory in 1983 when Apple released AppleWorks 1.0, Lissner put the memory management routines in a separate file called SEG.00. Calls to the memory manager went through a standard jump table at the beginning of the file. Isolating the memory manager made it possible for Lissner to simultaneously develop two versions of AppleWorks; one for the Apple II and the other for Apple /// computers.

In 1985, Apple introduced the Apple Memory Expansion Card, also known as the "Slinky" card. Version 1.3 of AppleWorks, released later that year,

included SEG.XM, a new memory manager with code to handle Apple systems with extra memory. Because memory calls went through standard entry points, Lissner did not have to modify the core programs in AppleWorks to accommodate the new memory. Instead, the startup code checked for the new card and loaded SEG.XM instead of SEG.00 if it found the extra memory.

Meanwhile, Apple was developing a new Apple II system. Known as the Cortland to most developers, it was often called the Rambo by Apple insiders. By

***Here is why data files require more room on the desktop than on a disk.***

the time Apple released AppleWorks 2.0 in 1986, the new machine was already on the market under the more refined name of "Apple IIGs". AppleWorks 2.0 included a new memory manager stored in the file SEG.RM, which I presume stands for "Rambo Memory".

While Apple IIe computers were still being shipped with 64K, an

Apple employee named Peter Baum came up with a new approach to adding memory. When Apple wouldn't pursue the project, he took the idea to a company in Texas which began marketing the RamWorks card, a memory card that fit in the IIe's auxiliary slot. That invention, and the accompanying AppleWorks Expander, made Applied Engineering a giant in the Apple II field. Other companies, such as the now defunct Checkmate Technology and Legend Memory Systems, also used similar technologies to increase the size of the AppleWorks desktop.

This was great for users, but made life difficult for those of us writing AppleWorks enhancements; we



## How Many Versions of AppleWorks?

Apple Computer and Claris Corporation authorized the following versions of AppleWorks:

U.S.A. 1.0, 1.0R, 1.1, 1.2, 1.3, 2.0, 2.1, 3.0; Italian 1.3, 1.4; French 1.2, 1.3, 1.4; German 1.2, 1.3, 1.4; Western Spanish 1.2; Eastern Spanish 1.2; Canadian French 1.2; Swedish 1.2.

In addition, I know of at least two unauthorized foreign language versions of AppleWorks: Hebrew 1.0, and Bulgarian.

There are also unauthorized U.S.A. releases dated 11/28/83 and 12/12/83 that were probably put into circulation by some of Apple's beta testers.

Productions of all authorized non-English versions of AppleWorks was discontinued by mid-1987. French 3.0 and German 3.0 localizations by French math teacher Daniel Lurot are unofficial, but are distributed legally because Lurot uses a patch program to make the modifications to a legal copy of English 3.0. For more information about the French version of AppleWorks, see the letter from Dimitri Geystor on page 3 of the April 1990 issue of the *AppleWorks Forum*.

The Bulgarian AppleWorks used in the Soviet Union definitely was not authorized by Apple. Then again, neither were the Apple II clones running that software!

That makes 26 authorized and unauthorized versions of AppleWorks. If you know of any others, please let me know.  
—Randy Brandt

now had to worry about myriads of AppleWorks/enhancement combinations. I have more than twenty versions of AppleWorks in my collection, not counting any enhancement programs. (For more information about the different versions of AppleWorks, see the sidebar entitled "How Many Versions of AppleWorks?" elsewhere on this page.)

When we began planning AppleWorks 3.0 with Claris, we recognized the need to include an auxiliary slot memory manager. Thus, the 1989 release of AppleWorks 3.0 includes SEG.AM, completing the set of four memory managers that come with the program.

## How Memory Managers Vary

When you first launch AppleWorks, the program determines the hardware configuration of your computer and decides which memory manager is appropriate for your system. AppleWorks then loads the appropriate manager into memory and some initialization occurs as the manager determines the total amount of desktop memory available. Then the manager awaits calls to its collection of routines.

Since all of the memory managers have routines with identical functions, although dissimilar operations, AppleWorks doesn't care which of the four managers is active.

Here is how each of the four memory managers responds to a request to load a line from the desktop into the word processor work area. All of the managers first locate the line in desktop memory, and then move the data.

1. Basic 128K Apples: SEG.ØØ loads the first character and stores it in the work area. Then it advances its pointers to point to the next character and repeats the load/store process until the entire line is in the work area.
2. RamFactor and Apple Expanded Memory card-equipped systems: SEG.XM loads the first character and stores it in the work area. Then it reloads from the same location, since the memory card automatically rearranges the data on the card so the string of characters all come from the same address. Since SEG.XM does not have to adjust its pointers, it retrieves data faster than SEG.ØØ.
3. Apple IIGs computers: SEG.RM uses the 65816 chip's Block Move Command. This command automatically moves the entire line into the work area with a single instruction from the memory manager, making it the fastest of all.
4. RamWorks and other auxiliary slot card-equipped systems: SEG.AM works like SEG.ØØ. Although SEG.ØØ is limited to one 64K bank of memory, SEG.AM can choose between numerous memory banks. It first switches to the appropriate memory bank and then performs the same steps as SEG.ØØ.



## Memory Pointers

The memory manager in AppleWorks uses “memory pointers” to keep track of the location of each block of data stored in memory.

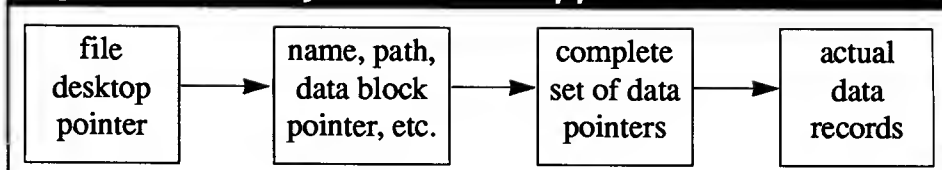
Pointers are like street addresses that tell the memory manager where the block is located. Pointers are always two bytes, and their values only have significance to the memory managers themselves. For example, the word processor can ask for the line associated with a pointer, and the memory manager will provide that line; the word processor has no understanding of what the pointer value itself represents.

Theoretically, AppleWorks can accommodate a maximum of 65,535 two-byte pointers. However, some pointers are reserved for special codes such as word processor formatting commands. Therefore, AppleWorks can keep track of approximately 50,000 memory addresses. This means there can be no more than 50,000 different memory blocks, regardless of the amount of memory available in your computer. AppleWorks has no way to refer to a larger number of memory blocks.

When you boot up AppleWorks, the memory manager determines how much desktop memory is available and calculates the minimum size of each memory block. For example, imagine that you have a 100K desktop. Since AppleWorks can support a maximum of approximately 50K of possible pointers, your memory blocks can be as small as two bytes each (that is,  $100K/50K$ ), and all memory block sizes would have to be multiples of two. If you have 1000K of desktop memory, your smallest memory block size is 20 bytes ( $1000K/50K$ ), and all block sizes have to be multiples of 20 bytes.

Let us use the word processor as an example. AppleWorks stores every line of a word processor document in a separate memory block. Now imagine a user working on a computer with a 100K desktop. If that user enters the word “Forum” on a line by itself, the text requires five bytes of memory. However, since a computer with 100K of desktop memory always allocates that memory in mul-

**Figure 1: Memory Pointers in AppleWorks**



tiples of two bytes, it takes six bytes to store “Forum” and one byte is wasted.

By comparison, if that user types “Forum” on a separate line with a computer that has a 1000K desktop, the memory manager allocates 20 bytes of memory, and wastes 15 of those 20 bytes. Thus, while AppleWorks can manage large amounts of desktop memory, it makes less efficient use of that memory as you expand your computer.

However, AppleWorks makes more efficient use of the storage area on your disk. No matter how much memory you have in your computer, the word “Forum” requires only five bytes when you save the file to disk.

In addition, AppleWorks does not store the data pointers on the disk. Instead, the memory manager builds a table of pointers in memory whenever you load a file onto the desktop. For example, a 2,000 line word processor file requires 4,000 bytes for pointers, since each pointer requires two bytes of memory.

This helps explain (a) why an AppleWorks file requires different amounts of desktop memory on different computers, and (b) why AppleWorks requires less disk space than desktop memory to store a file.

## Memory Pointers and Files

AppleWorks data files are collections of records and other information including cursor position, format settings, and data base report formats. A record consists of one line in a word processor file, one record in a data base file, or one row of a spreadsheet.

When you use the Organizer to select a file to display on the screen, AppleWorks uses the file’s memory pointer to request the file’s desktop block from the memory manager. The desktop block contains the file’s name, original pathname, status,

size, and a few other things, including a pointer to the block containing all the data pointers. The data pointers point to each record in the file. *Figure 1* presents a schematic representation of this process.

Each AppleWorks word processor line, data base record, and spreadsheet row is put in a separate block of memory, and the memory pointer table stores the location of each block. AppleWorks maintains its table of pointers in auxiliary memory. (No matter how much memory you put in your Apple II, your computer always has a main 64K bank and an auxiliary 64K bank which makes up the standard 128K. Everything else is considered expanded memory. AppleWorks 3.0 uses those first two banks for all of its code and pointer storage. The program uses expanded memory only for desktop storage.)

AppleWorks uses the memory pointers to maximize the speed with which it manipulates data in memory. For example, imagine typing the sentence "This is a sample word processor file." on three lines, like this:

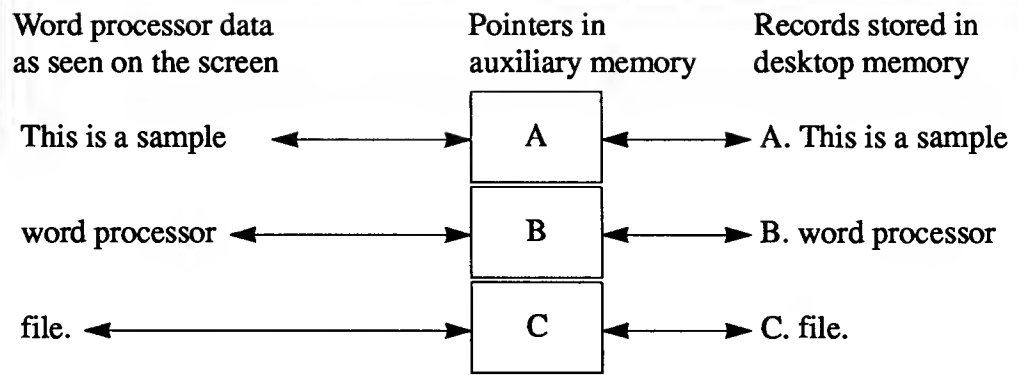
This is a sample  
word processor  
file.

*Figure 2* depicts a hypothetical set of pointers for the three blocks containing the sentence in this example.

Although the pointers are always in contiguous, sequential pairs of bytes, the records they reference can be anywhere on the desktop. As you can see from *Figure 2*, the lines of text are stored in blocks A, B, and C, and the pointer to the first line is in the first position in the pointer table. The pointer to the second line is in the second position, and so forth.

Each time you add another line, row, or record, AppleWorks adds another pointer to the table. There is always a one-to-one correlation between

**Figure 2: Hypothetical Pointers for a File**



the records in the file and the position of the memory pointer in the table. That is, the first pointer position contains the address of the first record. The second pointer position contains the address of the second record, and so on. The pointers themselves can point anywhere in memory, so the data does not have to be stored in the same order in desktop memory. Thus, line #1 can be stored anywhere, as long as pointer #1 contains the correct address of that record.

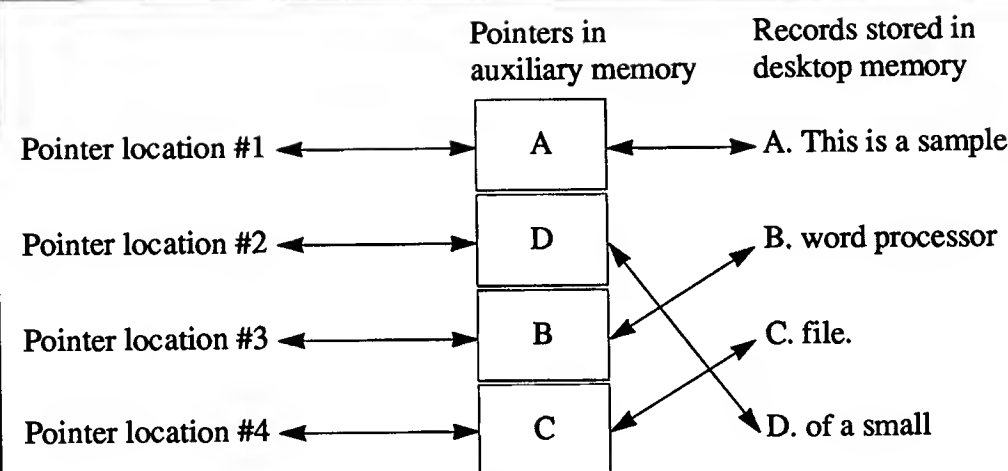
This approach to managing the data in memory gives AppleWorks much of its speed. For example, watch what happens when you insert a line in the middle of a document. Let's insert the words "of a small" between lines one and two so that the four lines of the new paragraph now read

This is a sample  
of a small  
word processor  
file.

All AppleWorks does is insert one pointer between the first and second lines. This pointer contains the address of the block of memory that contains the new text. See the example of the revised table in *Figure 3*.

Instead of having to move all the existing text to make room for the new line, AppleWorks only has to move the second and third pointers, or four bytes. If you are working with a file that contains an average of forty characters per line, this approach moves only 5% as much data as if the text itself had to be directly manipulated. That contributes to the exceptional speed with which AppleWorks can manipulate text.

**Figure 3: Pointers after Adding a Line**



line with only one character requires twenty bytes on that system.

In addition, AppleWorks must add another pointer to reference the new line. When you switch to a different file, a larger block is then required to store the data pointers. For example, our sample word processor file

Using pointers also speeds up AppleWorks functions, such as sorting in the data base and spreadsheet. The records stay in the same location in memory, but AppleWorks shuffles the pointers into new positions. Again, it is much faster to move a two-byte pointer to a new location than to rearrange a few thousand bytes of data.

This also helps explain why the AppleWorks spreadsheet module lets you sort the rows, but not the columns of data. Each row is a separate record with its own pointer. However, there are no pointers for each column; a column of data is spread over all of the rows in the spreadsheet and would take an incredible amount of actual data manipulation to sort.

When you switch to a different file on the desktop, AppleWorks stores the data pointers in one block, and then stores a pointer to that block in another block along with the name and other information that we described earlier. Now the entire file can be referenced with just one two-byte pointer. As a result, TimeOut TripleDesktop only has to swap 24 bytes to bring in a whole new set of 12 files to the active desktop.

## Out of Memory Errors

Sometimes, a small addition to the text in a document can be enough to make it too large to fit on the desktop. This occurs for two reasons. First, you have additional text to store in memory. As explained earlier, a large memory system might allocate blocks in multiples of twenty bytes, so a new

would require four pointers instead of the original three. However, there is a possibility that the fourth line of text used all the remaining desktop memory. Because the file block increased in size from six bytes to eight (three pointers to four), there would not be room to store the new block. In that case, you are ordered to save and remove the file before you can work with another file. There just isn't enough memory to close the file, so it must be saved to disk or lost forever.

## Highlights

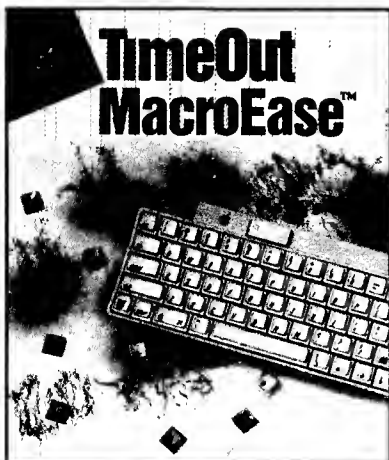
This month you learned that AppleWorks 3.0 offers four different memory management modules and how those managers differ. You also learned how AppleWorks uses pointers to keep track of its data and provide fast access to data. In addition, you learned why the same file varies in size on different memory configurations, and why AppleWorks files take less space on the disk than in memory.

Next month I will describe what happens as AppleWorks (including UltraMacros) waits for a single keystroke and then processes it.

*[Randy Brandt, an author of AppleWorks 3.0, is the developer of TimeOut PowerPack and numerous other TimeOut modules. He also owns JEM Software, publishers of AppleWorks enhancements such as FlexiCal and Mr. Invoice.]*

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*TimeOut™ programs have been supercharging AppleWorks® for three years—with over 250,000 copies sold.*

## TimeOut MacroEase

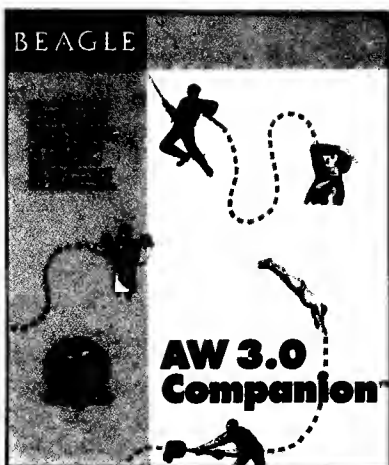
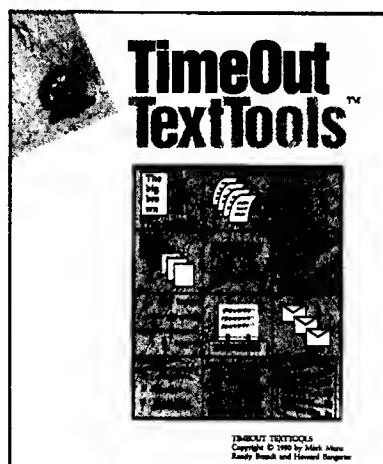
AppleWorks and UltraMacros can do just about anything you tell them to do—if you know what to say. Learn the macro language with MacroEase! This package contains a jumbo size collection of macro expertise expressed in clear, how-to form. You'll discover loads of macro secrets—techniques that will let you teach AppleWorks new tricks.

MacroEase lets you create your own custom AppleWorks menus, write your own interactive multiple choice quizzes, balance your checkbook, even take out the trash. (Well, not quite. We're still working on that part.) \$39.95

## TimeOut TextTools

TimeOut TextTools is for serious Word Processor users. The applications included with TextTools take the drudgery out of producing long or complicated documents—reports, thesis papers, newsletters, even your Great American Novel.

Some TimeOut TextTool features include *Glossary* that lets you select boilerplate text from a menu—enter names, addresses, even whole paragraphs faster than you can type. If you think that's handy, wait until you use *QuickStyles*! What Glossary does for text, QuickStyles does for Printer Options. Just select a style from a menu, such as "Bulleted Paragraph," and your Printer Options are instantly entered for you. And that's not all, other features include *SuperFind*, *QuickTabs*, *MarkMerge*, *MultiPrint*, *Indexor*, *Table Of Contents Generator* and the list goes on. \$49.95



## AW 3.0 Companion

Customize AppleWorks v3.0 for your own computer and your own special needs with AW 3.0 Companion, the official AppleWorks customization program from the developers of AppleWorks v3.0.

Start up the AW 3.0 Companion disk and you'll be greeted by familiar AppleWorks-style menus. Just select the changes you want made and you're all done. Appleworks will be customized to your liking! Over 70 ways to personalize your copy of AppleWorks are included. \$39.95

*TimeOut MacroEase, AW 3.0 Companion and TimeOut TextTools all require AppleWorks v3.0 and work on an Apple IIe, IIc, IIc+ or IIgs with one 5.25 or 3.5 inch disk drive. TimeOut MacroEase also requires UltraMacros v. 3.0.*

# Late News for AppleWorks Users

## Beagle Bros

Beagle Bros is now shipping version 1.3 of the AW 3.0 Companion, a program that lets you customize AppleWorks 3.0. (A review of the AW 3.0 Companion appears in the February 1990 issue of the *AppleWorks Forum*.)

Version 1.3 contains minor updates to the Companion. The word processor default patch in version 1.3 inserts only the commands that change the default values (earlier versions of the program inserted all the default options — whether or not you changed them), and makes it easier to switch between word processor, data base, and spreadsheet patches during the patching process. The disk also includes minor changes to TimeOut Pathologist and TimeOut PathMan.

The updated AW 3.0 Companion disk includes version 1.5 of the AW 3.0 Patcher, a patching program that fixes nine bugs in AppleWorks 3.0. See the Public Domain Update article on page 29 of this issue for more information about the changes to this program.

If you have version 1.0 or 1.1 of the AW 3.0 Companion, you should update your copy; version 1.2 fixed bugs in the earlier versions of the program. NAUG members can update to version 1.2 for free; send your original disk and a self-addressed return mailer with adequate postage to NAUG, Box 87453, Canton, Michigan 48187. We would appreciate, but do not require, a \$1 donation to help us defray our costs.

Updates to version 1.3 cost \$10 from Beagle. (The AW 3.0 Companion is not a TimeOut product and cannot be updated through the company's generous Beagle Buddy program.) [*Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, California 92121; Outside California: (800) 345-1750. In California: (800) 992-4022.*]

## Beaumont Software

Beaumont Software announced the release of version 3.02 of Soup Up Classic!, a collection of more

than 275 macros that work with AppleWorks. The macros are organized into sets that augment or replace the default macros supplied with UltraMacros. Macros in Soup Up Classic! cover drive and pathname management, word processor, data base and spreadsheet operation, file handling, editing, and clipboard use, correspondence and mail merge, value and label formatting, macro management, macro options, and printer option sets. A separate set of macros makes it easier to use TimeOut SuperFonts. A third set of macros provide "cursor drawing" routines, including "drawing tools", pre-programmed rectangles, squares and tables, a sample three-dimensional figure, and some tools for two- and three-dimensional flow charting. You can switch between macro sets with a single keystroke. The AppleWorks 3.0-compatible version of this product includes macros that let you do mathematical calculations in word processor documents. Soup Up Classic! requires AppleWorks 2.0 or later enhanced with UltraMacros. The disk costs \$24.95 plus \$3 s/h; specify 5.25-inch or 3.5-inch format, and AppleWorks 2.x or 3.x compatible versions of the macros. [*Beaumont Software, 5520 Hooks Avenue, Beaumont, Texas 77706; (409) 892-4120.*]

## Checkmate Technology

Checkmate Technology appears to be out of business. The company no longer answers its telephone.

## MacManco/Computer Enhancers

Some NAUG members received letters from MacManco offering 4-megahertz and 8-megahertz Zip Chips at attractive prices. According to Richard Stivers, President of Zip Technology, this is the company that supplied Zip with the defective chips that caused problems for Zip Chip owners. Stivers indicated that the MacManco chips are not guaranteed by his company.

When we called MacManco to confirm Stivers' comments, the company answered the phone and hung up after learning the caller was from NAUG. We immediately called back and received an answering ma-

chine message that said "We are either unable or unwilling to answer the telephone right now..."

We suggest that members be cautious about buying chips from MacManco. According to Stivers, MacManco also markets these chips under the company name "Computer Enhancers". Computer Enhancers is not listed in the telephone directory and did not return our call.

## JEM Software

JEM Software is shipping Outline 3.0, Randy Brandt's outlining program that works within AppleWorks. You can use Outline to prepare academic papers or "to do" lists, maintain your personal calendar, plan a party or family vacation, maintain a household inventory, outline a proposal, track student assignments, organize class notes, and perform other tasks. Outline 3.0 includes a 40-page printed manual and lists for \$44.95 plus \$3.50 s/h. [JEM Software, Box 20920, El Cajon, CA 92021.]

## John Link

Teachers and others who manage shared Apple IIGS computers are often concerned about users' propensity to change the system's Control Panel settings. By changing those settings, users can disable modems and printer ports, blank the screen display (by making the text and background the same color), make AppleWorks unbootable (by changing the system date on the clock) and otherwise wreck mayhem on the computer's operation.

John Link recently announced the release of LockOut 1.0, a utility that lets you keep users from changing the Control Panel settings. LockOut, which patches the computer's firmware during bootup, permits access to all Classic and New Desk Accessories, but prevents changes to the Control Panel from taking effect.

The package includes LockOut, UnLock, and 15 pages of documentation in an AppleWorks word processor file on the disk. The documentation describes how to install and de-install LockOut on ProDOS-8, ProDOS-16, and GS/OS floppy disks, AppleShare file servers, and hard disks. The author offers to refund your money if you are not satisfied. LockOut costs \$10 plus \$2 s/h. [LockOut, 3382 Sandra Drive, Kalamazoo, Michigan 49004.]

## Office Productivity Software

Office Productivity Software released AmperMacros, an UltraMacros enhancement that uses UltraMacros' ampersand-hook to add twenty commands to the program. The commands perform such functions as floating-point mathematics, Boolean algebra, calculated go-to's, nestable loops, special cell/store commands for macros that work with data base files, and more. The manual, which is distributed as an AppleWorks word processor file on the program disk, also includes instructions which let machine language programmers develop new UltraMacros commands. AmperMacros requires AppleWorks 3.0 and UltraMacros 3.1 and costs \$25 (including s/h). You can order the manual for \$5, which applies toward purchase of the program.

[Office Productivity Software, Box 1042, Mahomet, Illinois 61853.]

## Sequential Systems

Sequential Systems recently announced an upgrade to the software that accompanies the company's MEG-80 Apple IIe memory expansion card. The MEG-80, which fits in the IIe auxiliary slot, provides an 80-column display, expands the AppleWorks desktop, works as a RAM disk, and supports HiRes graphics.

The Utilities Disk shipped with the MEG-80 now includes WorksLaunch, an AppleWorks enhancement that lets you automatically load the AppleWorks dictionaries onto a RAM disk to speed up spell checking and eliminate the need for disk changes on 5.25-inch disk drive systems. The Utilities Disk also includes a memory test program and RAM disk software.


A MEG-80 card with 256K of RAM has a suggested list price of \$200. A one-megabyte card (the recommended configuration) costs \$325. Until November 1, NAUG members can purchase a 256K MEG-80 for \$105 or a 1-megabyte card for \$175. Contact the company, identify yourself as a NAUG member, and provide your NAUG membership ID number from the mailing label on this issue of the *AppleWorks Forum*. [Sequential Systems, Inc., 1200 Diamond Circle, Suite D, Lafayette, CO 80026; (800) 759-4549.]



# Late News from NAUG

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## NAUG Starts Fifth Year



This begins NAUG's fifth year of monthly publication of the *AppleWorks Forum*. Our thanks to Pam, Sherry, Bob, Nancy, Karla, Gail, and Sandy for answering hundreds of letters and telephone calls, and to our Members Helping Members volunteers who have answered thousands of AppleWorks questions. Thanks to Tim Harrison for developing and maintaining the NAUG bulletin board, and to Joe Connelly, Pete Crosta, and Bill Davis for representing NAUG on America Online, CompuServe, and GENie. We appreciate the work of our Beagle Buddies: Bruce Shanker, Oliver Roosevelt, Joe Connelly, and Pete Ross, and the assistance we receive from all the people in the industry who continue to support our efforts to help the AppleWorks community. And we especially acknowledge the creative work of Nanette Luoma, who is responsible for the design and layout of our publications. But most of all, our thanks to you, our members. Your support and encouragement make all this possible.

## Bulletin Board News

NAUG's new multi-line Electronic Forum bulletin board continues to be a popular source for information about AppleWorks and Apple II hardware. The Electronic Forum recently answered its 39,000th call. Despite its popularity, the new multi-user system answered more than 98% of all calls within the first five rings. Tim Harrison, the System Operator, recently increased the time NAUG users can access the system; each NAUG member can now log onto the board for up to 60 minutes daily. The bulletin board is a free service of NAUG.

Call the Electronic Forum to get answers to your questions, or to help your colleagues. The 40,000th caller to the board will receive a free, one-year NAUG membership extension.



## Special Offers

Until November 1, NAUG members can get significant discounts on the MEG-80 memory expansion card for Apple IIe computers. See "Sequential Sys-

tems" in the AppleWorks News article on page 26 of this issue for more information about the MEG-80. [*Sequential Systems, Inc., 1200 Diamond Circle, Suite D, Lafayette, Colorado 80026; (800) 759-4549.*]

## Publications Available from NAUG

**Apple II Technical Notes:** Technical information about Apple II computer hardware and software prepared by the Developer Technical Support Group at Apple Computer. 725 pages; 3-hole punched. NAUG members: \$43 plus \$5 s/h. Not available to non-members.


**AppleWorks File Formats:** Technical information about the structure of AppleWorks data files. Prepared by Claris Corporation. 27 pages. NAUG members: \$10; non-members: \$12.50. Prices include shipping/handling.

**AppleWorks 3.0 Entry Points:** Technical information about many of the routines in AppleWorks. Assumes a knowledge of Assembly Language. Prepared by Claris Corporation. 44 pages. NAUG members: \$12.50; non-members: \$15.00. Prices include shipping/handling.

**Bulletin Board Users Guide:** A useful guide to NAUG's new Electronic Forum bulletin board system. 16 pages. Free. Send a self-addressed, stamped #10 envelope.

**Panasonic Printer Codes:** An article by NAUG member Stan Hecker that describes the codes that let you use the features of most Panasonic printers. 6 pages. Mr. Hecker recently updated this article to include additional information about foreign language character sets available from the Panasonic printers. Free. Send a self-addressed, stamped #10 envelope.

All prices are in U.S. funds. Foreign orders by credit card only; shipping costs are additional; foreign members should indicate whether they want surface or air mail shipment (surface delivery is not recommended nor guaranteed by NAUG). Order from NAUG, Box 87453, Canton, Michigan 48187.





# The Power and the Glory

Vulcan internal hard drives are not only the fastest hard drives on the market, they're the most powerful. By a long shot. Vulcan's built-in power supply was custom-designed by Applied Engineering to provide the power other systems (and your unenhanced Apple II) lack.

## Sheer, raw power

A typically enhanced Apple II system (with 3 or 4 expansion cards) needs a heavy duty power supply. Vulcan's power supply is rated at more than 70 watts. *Double* the capacity of other hard drives and double the native capacity of your Apple. The power supply components are heatsinked to the aluminum case, and to harness all that power, Vulcan incorporates an ultra-quiet, flush mounted cooling fan.

## Unmatched speed

For speed, Vulcan incorporates an ultra-fast 16-bit data bus controller, not the less expensive 8-bit others use. The result? You'll load AppleWorks GS in less than 14 seconds. Boot GS/OS into the finder in 18 seconds. Verify disks at the astounding rate of more than 180 blocks per second. Vulcan wins any speed test.

## Upgradeable Flexibility

Choose a Vulcan from 20, 40, 100 — all the way to a staggering 200 MEGs. Vulcan is upgradeable, so it grows as your needs grow. And we don't mean by daisy-chaining additional hard drives. When you upgrade Vulcan, you pop one out and *replace* it with another.

Use virtually any operating system: GS/OS (v5.0 is included), ProDOS 8, DOS 3.3, CP/AM or Pascal 1.3. Vulcan supports them all with sixteen partitions (access four simultaneously). Choose slot 1, 2, 4, 5, 6 or 7. Even pseudo-slot to slot 7 from elsewhere. Vulcan works on 110/220 VAC, even European 115/230 VAC at 50-60 Hz.

## Easy to use

Vulcan simply pops in, replacing the Apple power supply under your computer's hood. Our built-in firmware automatically installs itself as a Desk Accessory for write protection and partitioning. The software we provide lets you easily park heads, back up and reformat.

Vulcan gives your Apple IIGS, IIe, IIfx or II an upgradeable combination of useable speed, safe

power (it's FCC certified) and practically unlimited size. It's a powerful and glorious advance into the Apple II future.

## Order today!

To order or for more information, see your local dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

<b>Vulcan 20 MEG</b> .....	<b>\$699</b>
<b>Vulcan 40 MEG</b> .....	<b>\$899</b>
<b>Vulcan 100 MEG</b> .....	<b>\$1795</b>
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# New Disks in NAUG's Library

## **AppleWorks 3.0 Patch Disk**

The NAUG library now includes version 1.5 of the AppleWorks 3.0 Patch Disk. Version 1.5 fixes an obscure data base bug that causes the cursor to jump to the top of the screen when you issue an Apple-< command in single record layout if the first category is not in the first line of the record layout. (If this happens, press the Return Key to send the cursor back to its normal position.)

## **BBS Help Files**

The BBS Help Files Disk contains an AppleWorks word processor file that includes all 22 help files on NAUG's bulletin board, the Electronic Forum. The word processor file is marked so you can quickly locate the section you want to read. You can print this file to produce your own copy of the complete BBS manual. Our thanks to Bill Neef of Grass Lake, Michigan for preparing this disk for our library.

## **Checkbook Plus**

Checkbook Plus is a collection of four well-designed AppleWorks data base templates and more than two dozen reports you can use to help you write checks, balance your checkbook, and maintain your tax records. Checkbook Plus is a simple system that does not use macros to link together files or commands. The disk includes a brief mini-manual and sample data files to help you get started.

Checkbook Plus is shareware. The author, Diana Diamond, requests that you submit \$10 if you use the templates. As with all shareware, you send the payment directly to the author if you find the templates useful.

## **Grammar Checker**

The NAUG Public Domain Library now includes Grammar Checker, an exceptional collection of macros that checks AppleWorks word processor documents for passive voice, extraneous words, sexist words, correct punctuation, prepositions at the

end of a sentence, and commonly misspelled words (e.g., affect/effect). The macros mark all instances of possible mistakes with a tilde (~) you can find with AppleWorks. These macros are a must for anyone concerned about the quality of their writing.

NAUG member Will Nelken developed this excellent writing resource. He acknowledges the contribution of Cliff Nation, who composed the word-search macros used in Grammar Checker.

Grammar Checker requires AppleWorks 3.0 and TimeOut UltraMacros 3.1 or later.

## **Keith Johnson Macros**

Keith Johnson is an accomplished macro programmer who has written numerous useful, sometimes esoteric macros. (One set of Mr. Johnson's macros controls the videodisk player in the University of Nevada Planetarium Star Theater.) We asked Mr. Johnson to put together a collection of his favorite, most useful macros.

This disk contains 33 macros. Many are menu driven; all are documented. These include eight significant word processor macros (Glossary, Printer Option Pairs, Special Printer Codes, Spaces to Tabs, Word Styles, Exchange Letters, Word Count, Particular Word Count), a random number generator, an alarm clock macro, macros that list the contents of memory, two macros that make it easier to use TimeOut SuperFonts, and five macros that help you manage disk drives and pathnames.

The Keith Johnson Macros Disk requires AppleWorks 3.0 and UltraMacros 3.1 or later.

## **Shrink-It/Shrink-It GS**

NAUG's Public Domain Library now includes two new versions of Shrink-It: Shrink-It 3.03 and Shrink-It GS. Shrink-It 3.03 is a ProDOS 8 program that runs on all Apple II systems. Shrink-It GS requires an Apple IIGS and GS/OS 5.02 or later.

Shrink-It reduces the size of files stored on a disk. The program unpacks Shrink-It, Binary II, and

## Public Domain Update...

.ACI files; thus you can use this one program to unpack most files. The primary application of Shrink-It is to reduce the time it takes to transfer files between computers and to save space when you archive files you do not use regularly.

Shrink-It 3.03 and Shrink-It GS use a more efficient algorithm and offer some features not found on earlier versions of the program. While both new versions of Shrink-It can unpack files shrunken with any earlier version of the program, Shrink-It 1.x and 2.x cannot unpack files shrunken with Shrink-It 3.x or Shrink-It GS.

NAUG uses Shrink-It 3.03 to reduce the size of all the files on its Electronic Forum bulletin board. Therefore, you need Shrink-It 3.01 or later, or Shrink-It GS to use any of the hundreds of templates, utility programs, and other files available free to members on NAUG's system.

Shrink-It GS is the first version of Shrink-It that can handle GS/OS file folders and GS/OS files with resource forks. Shrink-It GS can also unpack many of the files found in the MS-DOS, Macintosh, Amiga, Atari, and Unix libraries of the online services. Although programs written for these computers will not run on a IIGS, you can use Shrink-It GS to transfer text files, programmer's source code and graphics files to the IIGS. (You must convert the graphics files with public domain utilities such as SHR.Convert.)

Our thanks to Andy Nicholas for the many hours he spent developing Shrink-It and to Karl Bunker for writing the documentation for Shrink-It GS.

Shrink-It 3.03 is available on bootable 5.25-inch or 3.5-inch disks from NAUG's Public Domain Library. Shrink-It GS is available only on a 3.5-inch disk and, since it requires GS/OS, the Shrink-It GS disk is not bootable.

### Wellman Templates

Jim Wellman, author of FormsWorks, CoinWorks, and other popular shareware templates on the WELLMAN 01 and WELLMAN 02 disks has moved to Germany. He asks that members send their shareware payments to: SFC W. Wellman, Box 97, C Co. 703rd Spt. Bn., APO New York 09701.

### How to Get Disks

Unless otherwise noted, all disks are available in both 5.25-inch (\$4) and 3.5-inch (\$6) format, plus \$2 per order for shipping and handling. Order from NAUG, Box 87453, Canton, Michigan 48187. All NAUG disks are also available for downloading from NAUG's electronic bulletin board, the Electronic Forum, and from the NAUG areas on CompuServe, America OnLine, and GENie.



## MOVING?

Remember to notify NAUG if you change your address. Do not rely on the post office to forward your mail; you may miss some issues. Send address changes to NAUG; Box 87453; Canton, MI 48187.

### Mastering the Magic of Macros

- A user's guide to UltraMacros™ with AppleWorks™  
by K. Bernhard and H. Heidtman

A complete text on disk — with step-by-step examples. All you need to use, customize, and enjoy UltraMacros with AppleWorks.  
*Ideal for new users of UltraMacros.*

*A valuable resource for experienced UltraMacros users.*

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Chapters describe:

- system setup
- learning new macros
- creating a "turnkey" file
- enhancing AppleWorks
- creating "task files"
- memory aids, and more.

Chapters are AppleWorks word processing files, ready to read or print. Most chapters contain sample macros which can be transformed into working macros using "cut/copy & paste" techniques. **A special note to educators:** Because this text is on disk, descriptions, examples, tables, figures, and sample files can be adapted for workshops and seminars.

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Bowling Green, OH 43402

# How to Generate Your First Report—Part 1

by Dan Verkade

Last month you learned the basic concepts of relational reporting using TimeOut ReportWriter. I promised that you would learn the old fashioned way — by producing actual reports. This month you will take the first steps toward that goal. By the end of the next two articles you will be able to print the simple report that appears in *Figure 1*. The data in *Figure 1* came from the ROLODEX file included on the AppleWorks 3.0 and ReportWriter disks.

Your objective in these next two lessons is to generate your first ReportWriter report. Although you could generate the report in *Figure 1* directly from AppleWorks, your goal is to learn how to produce this simple report before launching into more complex exercises.

I will assume that you installed TimeOut onto your copy of AppleWorks and that you added the file TO.REPORTWRITER to your collection of TimeOut modules.

### The ReportWriter Layout File

The ReportWriter Layout File is the key to developing ReportWriter reports; each Layout File contains the information ReportWriter needs to generate one report. Layout Files are analogous to report formats in AppleWorks.

Follow these steps to start to develop the Layout File for this sample report:

1. Add the ROLODEX file to the AppleWorks desktop. This file is one of the sample files on both the AppleWorks and ReportWriter disks.

**Figure 1: Simple Report Produced with ReportWriter**

Name	Address	City	State	Zip
Joe Espana	987 Curtz Ave	Sun City	AZ	85372
Stan Smithers	99 Alma Ave	Sunville	CA	91353
Joe Christensen	995 Albion Way	Sarano	AZ	85715
Chris Stanley	446 Salinas Dr	Solano	AK	99671
Deborah Harrod	8765 Sand Hill Rd	Pageville	MT	59802
Sue Withers	1256 Blue Sky Dr	Solano	AK	99671
James Bliss	2453 Varidian Dr	Pageville	MT	59802
Michael Chang	3567 Saratoga Ave	Sarano	AZ	85715
Jim Wallace	2367 Martinez Way	Pageville	MT	59802
Elizabeth Hardy	1256 Red Rose Pl	Sun City	AZ	85372
Joseph Berg	1276 Mendocino Dr	Pageville	MT	59802
Chelsey Brown	1256 Sobrato Blvd #	Sunville	CA	91353
Carol Langley	22 Santa Marta Way	Sunville	CA	91353
Janet Strauss	225 Oroda #453	Solano	AK	99671
Marin Jamison	1278 Moraga Ave	Moraga Hills	AK	99701
Marty Benson	1276 Skyview	Moraga Hills	AK	99701

2. Invoke ReportWriter from the TimeOut Menu.
3. The ReportWriter Main Menu presents four choices. Select option #1, "Edit a ReportWriter definition" to get to the Edit File Menu.
4. With the Edit File Menu on the screen, select option #3, "Make a new file" and enter "NameList.Rolo".

Unlike AppleWorks, which limits you to twenty report layouts for each data base file, ReportWriter supports an unlimited number of reports for any file. However, ReportWriter requires a separate Layout File for each report.

There is no physical association of a ReportWriter layout with an AppleWorks file; that is, there is no way to determine which ReportWriter layouts work with a given AppleWorks file. Therefore, you should assign a name to each Layout File that helps you remember both the purpose of the report and the data base files associated with that report. The suffix ".Rolo"

# ReportWriter Tutorial...

in this file name will remind us that this is a layout file for the ROLODEX data base.

ReportWriter Layout Files follow the standard rules for ProDOS file names. The name can contain up to 15 characters, must start with a letter from A-Z, and may not include any symbols other than a period. ReportWriter will let you use a space when you name the file, but converts that space to a period in the actual file name. AppleWorks 3.0-compatible versions of ReportWriter accept both upper and lower case characters.

## Using the Editor

Your screen should now display the ReportWriter Editor that you will use to define all the elements of the report layout. The blank area in the center of the screen is the Editor Window, where you do your work. You can see any 20 rows and 79 columns of the report layout in this window.

If you know how to use the AppleWorks word processor, you already know how to use the ReportWriter Editor; most of the word processor commands work with the Editor. Here are the exceptions:

1. There is no word wrap in the Editor; you must press the Return Key at the end of a line.
2. The ReportWriter screen scrolls both horizontally and vertically. You can enter up to 240 characters into any ReportWriter line.
3. You are limited to 127 lines per document. That may seem restrictive but you will see that 127 lines is more space than you need.

## Typing and Editing Commands

Let's do some exercises to help us get acquainted with the Editor. Follow these steps:

1. Type your first and last name.
2. Enter an Apple-E to toggle between the insert and overstrike cursors.
3. Use the Arrow Keys to put the insert cursor under the first letter of your last name. Then type in your middle name and a space. Notice how your last name moved over to make room. If your line is longer than 240 characters, ReportWriter will sound the computer's bell to

warn you that the line is full.

4. Type in enough lines of text to make the screen scroll; press the Return Key after each line. Note that you can use any of the AppleWorks cursor movement commands to navigate through this document. For example, Apple-1 and Apple-9 take you to the top and bottom of the document respectively.
5. Type a line of text that is too long to fit on the screen and watch the screen scroll horizontally. The indicator at the bottom of the screen tells you the current cursor position.
6. Press the Return Key and note that the cursor repositions itself at the left edge of the screen, not in column 1. You can use the Arrow Keys, the Apple-Arrow Keys, or the Apple-< and Apple-> Keys to scroll horizontally across the screen.
7. Put the cursor at the beginning of a line and enter an Apple-Y to "yank" from the cursor position to the end of the line. Remember that the Apple-Y command deletes the entire line, including the portion that is not on the screen when you issue the command.
8. Enter a Control-R and a Control-L to tab right and tab left, respectively. Issue an Apple-T to set the tab length. The tab length can be set anywhere between one and forty columns. ReportWriter does not support true tabs. Instead, the program inserts a set number of spaces every time you press the Tab Key.
9. Issue an Apple-I to insert a new line. Note that ReportWriter inserts the line *above* the current cursor position. You cannot insert a line if there is text in row 127.
10. Issue an Apple-D to delete the current line. All lines below the deleted line will move up one row.
11. Issue an Apple-1 to go to the top of the file. Then issue an Apple-F, select the option "Text", and search for any characters in the Layout File.
12. Enter an Apple-? to see a list of the keystroke commands that work in the Editor (see *Figure 2*). I will describe the remaining keystrokes later in this series of articles.





# Get Help with AppleWorks Compatible Software and Desktop Publishing

by Nanette Luoma

Each month, the *AppleWorks Forum* lists the member-volunteers who offer technical support for AppleWorks products. This month's list identifies the volunteers who can answer questions about other AppleWorks compatible software, and desktop publishing. Next month's issue will contain a list of members who offer help with AppleWorks applications and telecommunications.

## AppleWorks Add-Ons

### How to Use This List

Use this month's list to find help with other AppleWorks compatible software and desktop publishing. To the left of each volunteer's name is one or more numbers indicating the enhancements that consultant supports. Volunteers are listed alphabetically by state.

- |                      |                            |
|----------------------|----------------------------|
| 1 = 1040Works        | 7 = CrossWorks             |
| 2 = AutoWorks        | 8 = EuroWorks              |
| 3 = RAMUP            | 9 = Publish-It! 2/3        |
| 4 = SchoolWorks      | 10 = Springboard Publisher |
| 5 = Sensible Grammar | 11 = Medley                |
| 6 = Sensible Speller | 12 = AppleWorks GS         |

		City	Home	Work
<b>Alabama</b>				
12	Norma M. Gradwohl	Mobile	205-343-4905	205-343-4905

<b>Arizona</b>				
5,6	Clay Evitts	Tucson	602-885-9789	602-296-5491

<b>California</b>				
1,9	Brian Blue	Darville	415-838-0997	415-954-6002
6	James Davis	Hayward	415-489-7024	
3,6	Berenice Maltby	Corona del Mar	714-640-7369	
1	Will Nelken	San Rafael	415-459-0845	415-456-1795
1,7,9	Jesus Orosco	Milpitas	408-270-1011	408-945-4344

<b>Colorado</b>				
9	Gary P. Armour	Littleton	303-933-9493	303-972-4665
1	Lyle Graff	Littleton	303-794-5970	303-977-4557
9	John Loren	Littleton	303-978-0603	

<b>Connecticut</b>				
9,10	William Delaney	Enfield	203-745-4048	203-749-8391
9	Ged Jones	Lakeville	203-435-0295	203-435-0871
9,11,12	Martin Knight	Middletown	203-346-9698	203-347-8594

		City	Home	Work
<b>Florida</b>				
5	H. Clay Bailey III	Jacksonville	904-744-2499	904-725-3477
9	Virginia Bobrick	Miami	305-653-3136	
3,9,11,12	Jeff Strichard	Fl. Lauderdale	305-567-9590	
6	Mike Ungerman	Oviedo	407-366-0060	407-366-0156

<b>Illinois</b>				
5-6,9,10	George Duffey	Bloomington	708-894-0849	708-451-3108

<b>Iowa</b>				
9	Stephen May	Audubon	712-563-2925	712-563-4217

<b>Louisiana</b>				
1,9	Charles Fryling, Jr	Baton Rouge	504-766-3120	504-388-1473

<b>Maryland</b>				
3	Raymond Greenberg	Darnestown	301-330-4912	301-353-4959
9	Ben Maser	Owings Mills	301-252-7884	301-887-0717
2	Paul M. Phelps	Baltimore	301-444-4086	301-291-4712
7,9,11,12	Ray L. Settle	Arnold	301-647-9192	301-887-0106

<b>Massachusetts</b>				
4	Donald McCabe	Westport	401-294-6256	508-636-2611
9	Chuck Schefreen	Marblehead	617-631-2787	617-728-7553

<b>Michigan</b>				
1	Jim Anker	Auburn Hills	313-391-0033	313-544-5344
3,9,12	Michael McMin	Swartz Creek	313-655-4442	313-232-6541
7	James G. Reasover	Jackson	517-789-8573	517-764-1440
12	Pete Ross	Wayne	313-726-8269	
9	Deborah Williams	Grosse Ile	313-671-0267	313-675-1550

<b>Minnesota</b>				
2,5,6,9,12	James Hirsch	Coon Rapids	612-421-8393	612-422-5572
1	Dick Kenfield	Hopkins	612-938-4382	
2,5-7	Richard A. Marchiafava	Fridley	612-572-9305	

<b>Mississippi</b>				
2	Allen Jackson	New Albany	601-534-8908	601-534-2271

<b>Missouri</b>				
5,9,12	Whit Crowley	Manchester	314-394-7955	

<b>Nebraska</b>				
6,9,12	Dr. John W. Kelley	Omaha	402-397-3485	
5,6,9,11,12	Larry B. McEwen	Hastings	402-463-2267	402-461-7550

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9	Steve Black	South Glens Falls	518-798-1128	518-793-9644
2,9	Linda Doscher	West Nyack	914-358-7064	
8	Carlos M. Madan	Morrisonville	518-562-0779	518-359-3322
9,12	Larry Merow	Sayville	518-567-0603	518-422-0315
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2,5,9	Jerry Taylor	Rochester	716-964-3319	
12	Terry Williamson	Orchard Park	716-662-5104	716-873-9750

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9	Linda Metzke	Concord	802-748-3298	802-626-9371

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<b>Wisconsin</b>				
9	Todd Novakowski	Ladysmith	715-532-7430	715-532-6202

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<b>Canada</b>				
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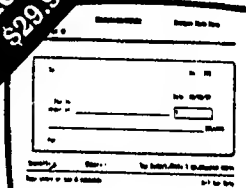
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3,5,6	Bernard Katz	Ramat Aviv	(03) 425-011	(03) 752-1133

<b>Mexico</b>				
4-10	Harve Thom	Mexico City	525-554-4283	525-516-7568

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